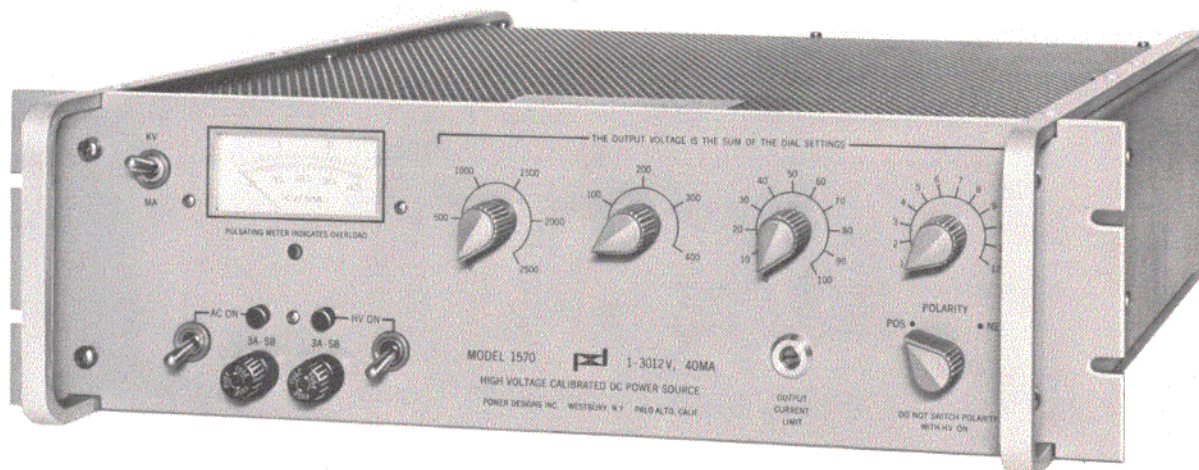


CALIBRATED HIGH VOLTAGE SOURCE

1-3012 VOLTS DC, 0-40 MA



APPLICATIONS

PHOTO MULTIPLIERS
SOLID STATE DETECTORS
PROPORTIONAL COUNTERS
ELECTRON OPTICS
IMAGE INTENSIFIERS
CRT DISPLAYS

GENERAL DESCRIPTION

The Model 1570 is a calibrated, high voltage power source designed to supply closely regulated DC to critical circuits where stability, low noise and reliability are prime considerations. This instrument replaces Models 1544 and 1547 and offers new technology reflecting field experience with more than 7,000 units in service over ten years. The Model 1570 offers twice the current output of the Model 1544 at a modest increase in cost and the equivalent current output of the Model 1547 at a lower price.

High voltage components including plate, heater transformers, voltage multiplier assemblies, etc. are environmentally isolated in vacuum-encapsulated epoxy modules.

FEATURES

- Calibrated control of the output voltage in 500 V, 100 V, 10 V steps and a continuously adjustable vernier potentiometer. This potentiometer has a range of 11 V and a resolution of 10 mV. Calibrated accuracy is better than 0.25% of the dial settings above 250 V, 1% or 100 mV below 250 V.
- Continuously adjustable front panel current limiter permits adjustment of the maximum output current from 5 to 40 mA. Screw slot access avoids accidental misadjustment. Electronic current limiting system permits continuous operation into an overload or short circuit with automatic restoration upon fault clearance. Output condition is periodically sensed and normal function restored automatically upon fault clearance. Pulsating meter signals malfunction.*
- Solid state control amplifier employing a new low noise zener voltage reference with a temperature coefficient of better than 10 ppm. Parallel high voltage vacuum tubes are used for the regulator series control element.
- Rear panel polarity reversing switch provides operation with either positive or negative terminal at ground potential. An option is available for operation of the normally grounded terminal at potentials up to 500 VDC from chassis.

*Patent No. 3,083,330

SERIAL NO. _____

POWER DESIGNS

CALIBRATED HIGH VOLTAGE SOURCE

DESIGN FEATURES

- Vacuum tube/semiconductor regulator system prevents voltage overshoot on turn-on or turn-off and eliminates time delay relay circuits.
- Silicon semiconductor amplifier with low noise differential input stage. Better than 50 microsecond response time.
- *Fast, self-indicating electronic overload and short circuit protection permitting continuous operation into a short circuit with automatic restoration upon fault clearance. Pulsating voltmeter needle signals overload.
- Corona free epoxy encapsulated transformers with multiple electrostatic shielding.
- Prestabilized solid state voltage reference with .001%/°C temperature coefficient and 15 microvolt noise level.
- Precision 4-dial voltage control calibrated to better than 0.25% utilizing low leakage ceramic switches and 5 PPM sealed wirewound resistors. Resettable to 0.01%.
- High resolution voltage output vernier potentiometer with precious metal wiper arm and resistance card with soldered end contacts.
- Glow discharge tubes protect transistors and precision divider resistors against high voltage transients.
- Lifetime silicon high voltage rectifier employing one ampere diodes in a multiple series configuration with built-in switching transient suppression. Voltage derated to 50% of maximum operating potentials.
- Electronic current limiter holds output to 125% of rating protecting loads such as sensitive photomultiplier tubes and permitting use as a capacitor charging source.
- BNC "safety" high voltage output receptacles safeguard against accidental insertion of low voltage coaxial leads and connectors.
- Dual volt-ammeter for output voltage or current monitoring.
- Low leakage plastic dielectric output and feedback capacitors in high voltage circuits. Computer grade electrolytic capacitors in low voltage circuits.
- Polarity reversing switch permits supply operation with either positive or negative output terminal at ground potential.
- Line and load circuits separately fused. Accessible at front panel. Separate HV on-off switch.
- Front and rear handle/rail construction provides ease in bench handling or relay rack installation.
- Fifty hour pre-aging of power supply prior to final test insures field service reliability.

* Patent No. 3,083,330

ELECTRICAL SPECIFICATIONS

OUTPUT: 1 Volt to 3012 Volts D-C, continuously adjustable 0-40 MA.
INPUT: 105-125 Volts, 47-440 Hz, 230 Watts.*

REGULATION: 0.001% plus 2 millivolts for line or load variations over the operating range.

RIPPLE: 1 millivolt peak to peak, maximum.

RESPONSE TIME: Less than 50 microseconds to return to within regulation limits for 100% step change in rated load.

STABILITY: Less than .005% drift in output voltage per hour; less than 0.01% drift per 24 hour period at constant ambient temperature after warm-up.

*At nominal line voltage.

VOLTAGE CONTROLS: Precision calibrated voltage divider:

0 to 2500 Volts in five 500 Volt steps

0 to 400 Volts in four 100 Volt steps

0 to 100 Volts in ten 10 Volt steps

1 to 12 Volts fine adjustment potentiometer

CALIBRATION ACCURACY: 0.25% of the voltage control dial readings from 250-3012 Volts; 1.0% or 100 millivolts (whichever is greater) from 1-250 Volts.

RESOLUTION: 10 millivolts (fine adjustment potentiometer).

RESETTABILITY: .01% or 100 millivolts.

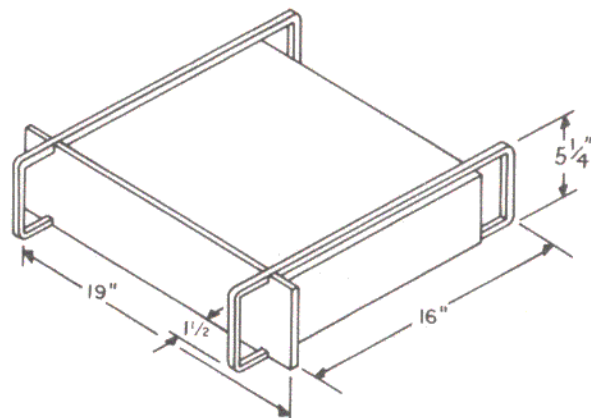
TEMPERATURE COEFFICIENT: 25 parts per million per °C change in ambient after warm-up.

OPERATING TEMPERATURE: Continuous duty at full load from 0-50°C ambient.

OUTPUT TERMINALS: Two SHV (BNC) safety high voltage receptacles on rear chassis surface.

POLARITY REVERSING SWITCH: Panel reversing switch permits operation with either positive or negative output terminal at ground potential.

MECHANICAL SPECIFICATIONS



WEIGHT: 33 lbs.

FINISH: Smooth light grey vinyl synthetic enamel panel with black nomenclature. Golden alodine chassis. Grey epoxy enamel perforated metal dust covers. Brushed anodized natural aluminum handles and rails.

Model 1570\$550. F.O.B. Westbury, N. Y.

Model 1570K\$590. F.O.B. Westbury, N. Y.
 For 210-250 V, 47-440 Hz operation

POWER DESIGNS